

Application Number 09/742,625
Response dated March 3, 2008
Response to Office Action mailed June 3, 2008

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REMARKS

In view of the following remarks, Applicants request further review of the application and reconsideration of the rejections set forth in the Office Action dated March 3, 2008.

Claim Rejections Under 35 U.S.C. § 103(a)

A. Claims 37-39, 51-52, and 67-71 stand rejected under 35 U.S.C. 103(a) as obvious over DE 2224732 (hereafter DE '732) in view of US 3,529,993 (hereafter Cummings), further in view of WO 9622338(hereafter Helmer).

B. Claims 38-39 and 71 stand rejected under 35 U.S.C. 103(a) as obvious over DE '732 in view of Cummings, further in view of Helmer, and further in view of US 4,789,604 (hereafter van der Hoeven).

Applicants respectfully traverse the rejections for the reasons set forth below.

A. DE '732, Cummings and Helmer

1. The Presently Claimed Invention

The presently claimed invention provides a cost efficient manufacturing process for making polymer coated (primed) composite substrates directly from the press without any extra latex processing or heating/drying steps.¹ In the presently claimed embodiment of this process a primer coating composition is applied on a compressible mat made of fibers and particles in a resin binder composition. The primer coating composition includes:

95 to 99 % by weight, based on weight of dry materials in the composition, of an anionically stabilized aqueous emulsion of a copolymer with a T_g of -10 °C to 50 °C, the polymer comprising in polymerized form a polymerization mixture containing two or more ethylenically unsaturated monomers;

0.2 to 5% by weight of a polyimine compound having a number average molecular weight from 250 to 20,000; and

0.2 to 5% by weight of a volatile base.

The primer coating composition rapidly forms a crosslinked matrix. A topcoat composition is applied over the primer coating composition, and this construction is compressed and heated to

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The primer coating composition rapidly forms a crosslinked matrix. A topcoat composition is applied over the primer coating composition, and this construction is compressed and heated to form a polymer coated composite substrate. The rapidly crosslinking compounds used as the primer compositions in the present invention eliminate the heating and drying steps required in previous processes. Moreover, the compositions are free of formaldehyde,² which is difficult to use in a manufacturing environment and is unacceptable to some customers.

2. *The Obviousness Rejection*

The present obviousness rejection is based on the following arguments:

- (1) It would be obvious to replace the aminoplast resin in DE '732 with the composition described in Cummings (the reaction product of a polyamine and a polyanhydride) because the Cummings composition dries quickly and can be used as a wood primer.³
- (2) Cummings also states that his quick drying composition may be used as a traffic paint.⁴ Since the composition described in Helmer is also useful as a traffic paint, it would be obvious for a skilled artisan to replace the Cummings composition in the DE '732 process with the Helmer composition to achieve a hard, smear resistant coating and provide the presently claimed process.
- (3) One of ordinary skill in the art would have a "reasonable expectation of compatibility" between a top coat layer and the "amino resin" of Helmer, since Helmer and DE '732 both include acrylic resins.

3. *Applicants' Response*

The DE '732 reference describes a process in which a paper carrier sheet is applied to a wooden plate and this construction is pressed under pressure and heat to form a high gloss synthetic resin surface.⁵ In DE '732 the paper is impregnated with a quick hardening aminoplast

² '308 patent, col. 2, lines 43-57.

³ Office Action dated March 3, 2008, page 4.

⁴ *Id.*, at col. 2, lines 35-37.

⁵ DE '732 translation, page 3.

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resin⁶ and coated on both sides with a mixture of an aqueous quick hardening aminoplast resin and a dispersion of a self-crosslinking acrylic resin.⁷

With respect to ground of rejection (1), DE '732 describes a process in which a paper carrier sheet coated and impregnated with an aminoplast resin based primer is applied on a wood surface and pressed under pressure and heat. The resin flows during the molding process to form a closed synthetic resin surface, and the sheet is joined to the wood material.⁸ In contrast, the presently claimed method does not include a paper carrier for the primer, and the primer is applied directly on a surface of a compressible mat made of at least one of fibers and particles in a resin binder composition, or on a surface of a paper that is already adhered to the compressible mat. This lack of a carrier sheet requires that the primer composition exhibit excellent hold out (i.e. not sink too far into the surface and remain on top) when applied to the compressible mat, and the crosslinked matrix should rapidly form a surface suitable for receipt of subsequently applied top coats.

DE '732 fails to teach or suggest elimination of the primer carrier sheet, and fails to even suggest application of a topcoat over the sheet. After reviewing the DE '732 reference, one of ordinary skill in the art would not have a reason to eliminate the coated/impregnated paper carrier and replace it with a primer that rapidly forms a top coat receptive surface on a compressible mat as presently claimed, and would have no incentive to apply a top coat over the paper carrier.

Further, even if the paper carrier in DE '732 was eliminated as suggested by the Examiner, it is Applicants' position that the references would not provide one of ordinary skill with an incentive to replace the aminoplast resins in DE '732 with the compositions described in Cummings. The aminoplast resins described in DE '732, which are formed by reacting amines and aldehydes, differ significantly from the compositions in Cummings, which are reaction products of polyamines and polyanhydrides (e.g. a reaction product of a vegetable or a fish oil with maleic anhydride).⁹ The Examiner characterizes these compounds as "amino resins,"

⁶ An aminoplast resin is formed by a reaction between an amine and an aldehyde. See Hawley's Condensed Chemical Dictionary, 13th ed. (1997).

⁷ DE '732 at pages 3-4.

⁸ *Id.*, at page 3.

⁹ Cummings, col. 5, lines 1-15.

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apparently because they both use an amine reactant. However, the amines are an extremely large class of compounds, and the final reaction products in DE '732 and Cummings are completely different. Further, as noted above, DE '732 describes a process in which a paper overlay with an aminoplast resin is heated in a press under pressure,¹⁰ while Cummings describes a primer that cures rapidly at room temperature without required heating.¹¹ The Examiner has identified no teaching or suggestion in Cummings that his composition would be useful under the heat and pressure conditions described in DE '732.

Therefore, other than the mere fact that these compounds each are made from an amine reactant and cure rapidly when applied to wood under totally dissimilar sets of conditions, the Examiner has identified no rational reason that one of ordinary skill would substitute the compositions in Cummings for the primers in DE '732. Of all the quick drying compositions available in the art, why would one of ordinary skill select the wood primer/traffic paint in Cummings to improve the surface of the construction in DE '732? Applicants respectfully submit the Examiner is improperly using the present disclosure, which utilizes a traffic paint as a quick drying primer, as a template to identify and select the composition in Cummings.¹² It is well settled that the claimed invention must be considered as a whole, and cannot be broken into its component parts and a reference found corresponding to each component – simply identifying all the elements in the prior art does not make a *prima face* case of obviousness.¹³

With respect to ground of rejection (2), the Examiner argues that it would be obvious for a skilled artisan to substitute the traffic paint in Helmer for the traffic paint in Cummings. The Examiner characterizes the compounds in Cummings and Helmer as "amino resins," but again this characterization lacks technical merit. Applicants' independent claims specifically require a primer composition that includes a polyimine and a volatile base. An imine is generally understood by those of ordinary skill in the art to refer to a nitrogen-containing organic compound having a carbon-to-nitrogen double bond, while an amine is generally understood to

¹⁰ See DE '732 examples, where the impregnated paper web is heated at 160-170 °C at a pressure of 15-18 kP/cm² for 40-60 seconds.

¹¹ Cummings, col. 1, lines 38-39.

¹² See, e.g. *In re Gorman*, 18 USPQ2d 1885 (Fed. Cir. 1991).

¹³ See, e.g. *Princeton Biochemicals, Inc. v. Beckman Coulter, Inc.*, 411 F.3d 1332 (Fed. Cir. 2005).

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refer to classes of compounds derived from ammonia (NH_3), which would not be expected to include the carbon-nitrogen double bond.¹⁴ The presently claimed primer composition, which includes an imine, is not an "amino resin" as taught by DE '732, and includes no amine reactant as taught in the Cummings reference.

Since the compositions are very different, knowledge of the amine compositions in DE '732 and Cummings would not provide the skilled artisan with any incentive to select the imine compounds in Helmer's traffic paint as a primer coating in a process for making a polymer coated article.¹⁵ Applicants respectfully submit that under these circumstances the selection of the Helmer traffic paint composition from the multitude of possible choices of quick drying coatings would not be obvious to one of ordinary skill in the art, and the present obviousness rejection could only be attributed to the exercise of impermissible hindsight bias.

With respect to ground of rejection (3), the Examiner takes official notice, citing the 13th Edition of Hawley's Chemical Dictionary, that it is "common knowledge in the art" that certain polyethylencimine compounds are "reactive toward cellulose."¹⁶ Therefore, according to the Examiner, the imines in Helmer would be compatible with the acrylic resin in DE '732.¹⁷

The process in DE '732 does not even contemplate application of a topcoat, and the Helmer and Cummings references teach that their primer compositions are to be applied under ambient conditions without a topcoat. The fact that certain imines are reactive toward cellulose does not provide a rationale for utilizing the compositions in Helmer, which are taught to be applied under ambient conditions without a topcoat, in the process of DE '732, which utilizes high heat and pressure and does not utilize a topcoat. Applicants respectfully submit that it is not the compatibility between imines and cellulose that is relevant here, it is the compatibility of the imines and subsequently applied topcoat compositions, which are not even contemplated in the cited references. Again, the Examiner has identified no teachings in DE '732 that would suggest use of the traffic paint in Helmer as a primer in making wood composite materials.

¹⁴ See, e.g., *Hawley's Condensed Chemical Dictionary*, 13th ed. (1997).

¹⁵ The Examiner dismisses this argument because Applicants are "attacking the Helmer reference individually." The argument instead challenges the Examiner's contention that it would be obvious to substitute the imine composition in Helmer for the amine derived resins in DE '732 and/or Cummings.

¹⁶ Office Action dated March 3, 2008, page 4.

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The Supreme Court case *KSR International Co. v. Teleflex Inc* permits rejection of a claimed invention as being obvious when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions to pick from to solve the problem.¹⁸ Here, however, the person of ordinary skill in the art is not presented with a finite number of solutions to pick from, but rather, an infinite number of potential choices.¹⁹ A search of the PTO website reveals that over 75,000 issued patents are directed to coatings.²⁰ Of these over 75,000 patents (and the zillions of coating compositions disclosed therein) the Examiner has not established that a person of ordinary skill in the art, without the benefit of having read the instant application, would have any reason to focus on or pick the traffic paint composition of the Helmer reference for use in the process described in DE '732.²¹ This is especially true given that the Helmer reference is directed to an end use (traffic paint) that is far removed from Applicants' field of endeavor (manufacture of composite substrates).

For the reasons above, the imine compounds in Helmer would not be substitutable for the amine derived compounds in DE '732 or Cummings to provide the presently claimed invention. *KSR International Co. v. Teleflex Inc.* cautions that "[a] factfinder should be aware . . . of the distortion caused by hindsight bias and must be cautious against arguments reliant upon *ex post* reasoning."²² *KSR* does not permit selective picking and choosing bits-and-pieces of technology out of the nearly infinite possible available references.²³ Nor can the combination come from the applicant's invention itself.²⁴ The present obviousness rejection is based on hindsight following review of the present disclosure, and is improper. Applicants respectfully submit that the process presently claimed in claims 37-39, 51-52 and 67-71 is not obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings and Helmer. Reconsideration and withdrawal of the rejection are respectfully requested.

¹⁷ Office Action dated March 3, 2008, page 4.

¹⁸ *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1742 (2007).

¹⁹ The imino composition of the Helmer reference is one of a nearly infinite number of potential choices for a person of ordinary skill in the art to pick from.

²⁰ A search of the word "coating" in the abstracts or title fields of the Issued Patents database yielded over 75,000 hits.

²¹ *Ortho-McNeil Pharmaceutical, Inc. v. Mylan Laboratories, Inc.*, No. 2007-1223, slip op. at 9-11 (Fed. Cir. March 31, 2008).

²² *KSR Int'l Co.*, 127 S. Ct. at 1742.

²³ *Id.*

²⁴ *Id.*, see, e.g. *In re Oetiker*, 24 USPQ2d 1443 (Fed. Cir. 1992).

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B. DE '732, Cummings, Helmer and van der Hoeven

As noted above, the amine derived compounds used in DE '732 and Cummings are very different from the imine compounds described in Helmer. One of ordinary skill in the art would have no incentive to modify the process in DE '732 to replace the amino compounds with the compounds in Helmer, and such a modification would not have a reasonable expectation of success.

These deficiencies are not remedied by the van der Hoeven reference, which would further fail to provide one of ordinary skill in the art with an incentive to make the modification to the DE '732 process proposed by the Examiner.

For at least this reason, the present obviousness rejection is based on hindsight following review of the present disclosure, and is improper. Applicants respectfully submit that the process presently claimed in claims 38-39 and 71 is not obvious under 35 U.S.C. § 103(a) over DE '732 in view of Cummings, Helmer and van der Hoeven. Reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims.

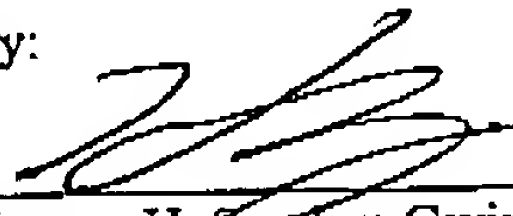
Please charge any additional fees or credit any overpayment to deposit account number 50-1778.

If questions remain regarding the above, or if the Examiner wishes to discuss any aspect of the present application, please contact the undersigned.

Date:

June 3, 2008
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